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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,082	01/25/2002	Andrew Storm	52637-0031	3340

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EXAMINER

TRAN, KHAI

ART UNIT PAPER NUMBER

2611

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/057,082

Applicant(s)

STORM, ANDREW

Examiner

KHAI TRAN

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-15, 17-21, 23-25, 27-31, 33-46, 48-53, 55-59, 61-63, 68-89 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8, 10-14, 15, 17-20, 39-46, 48-52, 53, 55-58, 69-81, 82-86 is/are allowed.
- 6) ☒ Claim(s) 21, 25, 31, 59, 63 and 87 is/are rejected.
- 7) ☒ Claim(s) 23-24, 27-30, 33-38, 61-62, 65-68, 88-89 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/2/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed 3/27/2006 has been entered. Claims 22, 26, 32, 60, 64 have been cancelled. Claims 1-8, 10-15, 17-21, 23-25, 27-31, 33-46, 48-53, 55-59, 61-63, 68-89 are pending in this Office action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 21, 25, 31, 59, 63, 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al (U.S. Pat. 6,704,367) in view of Sankaranarayanan et al (U.S. Pat. 6,134,274).

Regarding claim 21, Wang et al disclose a method of assigning bits in a discrete multi-tone modulation communication system, the method comprising: assigning, to one or more channels in a plurality of channels, a number of bits based on a performance characteristic of each of the one or more channels (the number of bits assigned to each subchannel are mapped onto QAM constellation for form a complex sample, see col. 2, lines 30-47). Wang et al fail to disclose a step of assigning to the one or more channels a gain values based on the performance characteristic and a specified gain limit of each of the one or more channels.

Sankaranarayanan et al disclose assigning a gain value to the one or more channels based on the performance characteristic and a specified gain limit (see col. 4, lines 33-65, illustrating the gain-to-noise ratio is calculated in an initialization period or periodically) of each channel (col. 4, lines 15-32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to assign the gain value to some of the channels on the performance characteristic as taught by Sankaranarayanan et al into the teachings of Wang et al for calculating overall constraint power. Therefore, the requirement of the individual power level is met.

Claims 25, 31, 59, 63, 87 are similar to claim 21. Therefore, claims 25, 31, 59, 63, 87 are rejected under a similar rationale.

Allowable Subject Matter

4. Claims 1-8, 10-14, 15, 17-20, 39-46, 48-52, 53, 55-58, 69-81, 82-86 are allowed.

5. Claims 23-24, 27-30, 33-38, 61-62, 65-68, 88-89 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: Wang et al and Sankaranaraynan et al fail to disclose a method for assigning bits a plurality of the channels in a discrete-multi-tone modulation communication system, comprising: determining an allowable number of bits that can be carried by each of the one more channels using a signal to noise measurement for each of the one or more channels for a first group of channels in the plurality of channels, wherein the

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allowable number of bits that can be carried by each channel in the first group of channels is less than a characteristic minimum bit value for channels in the discrete multi-tone modulation communications system, the method further comprising reducing the determined allowable number of bits for each channel in the first group of channels to zero.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAI TRAN whose telephone number is (571) 272-3019. The examiner can normally be reached on 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JAY PATEL can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KHAI TRAN
Primary Examiner

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KT
December 20, 2005


KHAI TRAN
PRIMARY EXAMINER